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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/333,181	06/14/1999	ANTHONY JOHN DEAN	RD-25-934	3817

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GENERAL ELECTRIC COMPANY
CRD PATENT DOCKET RM 4A59
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EXAMINER	
SMITH, ZANDRA V	

ART UNIT	PAPER NUMBER
2877	

DATE MAILED: 06/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/333,181	DEAN ET AL.	
	Examiner	Art Unit	
	Zandra V. Smith	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 May 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,6-9,15-31,37 and 38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4, 6-9, 15-31, and 37-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4, 23-26, and 37-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over ***Conklin et al. (3,358,148)*** in view of ***Taylor et al. (5,828,458)***.

As to **claims 1 and 23,** Conklin discloses a haze measuring apparatus with solid block cavity, comprising:

a housing having an inner flow portion and which is removable disposable between adjacent portions of pipeline to permit fuel flow from a fuel source through the inner flow portion (fig. 1, col. 2, lines 55-56, and col. 5, lines 47-52);

a light source within the housing (col. 2, line 54);

first and second photo-detectors adjacent one another in the housing, the first photo-detector detecting substantially full strength light and the second photo-detector detecting a baseline (col. 2, lines 57-65), the second photocell being offset from a normal unimpeded path between the laser diode and the light source (see fig. 2); and

circuitry coupled to the first and second photo-detectors to monitor the ratio of measured light intensities (col. 2, line 65-col. 3, line 8).

Conklin differs from the claimed invention in that the light source is not disclosed as a laser diode and the photocell is not disclosed as a photodiode, however since a laser diode is a

light source and a photodiode is a type of photocell, it would have been obvious to one having ordinary skill in the art at the time of invention to include a laser diode and a photodiode, as a substitution of art recognized equivalents.

In addition, Conklin fails to specifically state that the sensor is mounted in-line between adjacent portions of a pipeline, however since the system is designed to measure a plurality of samples, including fuel oils (col. 1, line 27) and since it is capable of being installed at any position alone a pipe-line (col. 5, lines 45-52), it would have been obvious to one having ordinary skill in the art at the time of invention to install the device between adjacent portions of the pipe-line to ensure that the fluid in the pipe line is tested and as a means to prevent permanent interruptions in the flow.

Additionally, Conklin fails to use the ratios of intensities (col. 5, lines 7-15) calculated to initiate a system control, however to do so is well known as taught by Taylor. Taylor discloses a turbidity sensor that includes monitoring of signals to initiate a system control (col. 5, lines 13-27). It would have been obvious to one having ordinary skill in the art at the time of invention to include a control structure to initiate a system control to ensure that the system runs properly by ensuring that the sensor is properly cleaned.

As to **claims 4 and 26,** Conklin and Taylor disclose everything claimed, as applied above, in addition contaminants will cause light the scatter and the light intensity measured by the second photo-detector will increase above a base line (col. 4, lines 23-32).

As to **claim 37,** Conklin discloses a haze measuring apparatus with solid block cavity, comprising:

a housing having an inner flow portion (fig. 1, col. 2, lines 55-56, and col. 5, lines 47-52);

a light source within the housing (col. 2, line 54);

first and second photo-detectors adjacent one another in the housing, the first photo-detector detecting substantially full strength light and the second photo-detector detecting a baseline (col. 2, lines 57-65), the second photocell being offset from a normal unimpeded path between the laser diode and the light source (see fig. 2); and

circuitry coupled to the first and second photo-detectors to monitor the ratio of measured light intensities (col. 2, line 65-col. 3, line 8).

Conklin differs from the claimed invention in that the light source is not disclosed as a laser diode and the photocell is not disclosed as a photodiode, however since a laser diode is a light source and a photodiode is a type of photocell, it would have been obvious to one having ordinary skill in the art at the time of invention to include a laser diode and a photodiode, as a substitution of art recognized equivalents.

In addition, Conklin fails to specifically state that the sensor is mounted in-line between adjacent portions of a pipeline, however since the system is designed to measure a plurality of samples, including fuel oils (col. 1, line 27) and since it is capable of being installed at any position alone a pipe-line (col. 5, lines 45-52), it would have been obvious to one having ordinary skill in the art at the time of invention to install the device between adjacent portions of the pipe-line to ensure that the fluid in the pipe line is tested and as a means to prevent permanent interruptions in the flow.

Additionally, Conklin fails to use the ratios of intensities (col. 5, lines 7-15) calculated to initiate a system control, however to do so is well known as taught by Taylor. Taylor discloses a turbidity sensor that includes monitoring of signals to initiate a system control (col. 5, lines 13-

27). It would have been obvious to one having ordinary skill in the art at the time of invention to include a control structure to initiate a system control to ensure that the system runs properly by ensuring that the sensor is properly cleaned.

As to **claim 38,** Conklin discloses a haze measuring apparatus with solid block cavity, comprising:

a light source within the housing (col. 2, line 54);

first and second photo-detectors adjacent one another in the housing, the first photo-detector detecting substantially full strength light and the second photo-detector detecting a baseline (col. 2, lines 57-65), the second photocell being offset from a normal unimpeded path between the laser diode and the light source (see fig. 2); and

circuitry coupled to the first and second photo-detectors to monitor the ratio of measured light intensities (col. 2, line 65-col. 3, line 8).

Conklin differs from the claimed invention in that the light source is not disclosed as a laser diode and the photocell is not disclosed as a photodiode, however since a laser diode is a light source and a photodiode is a type of photocell, it would have been obvious to one having ordinary skill in the art at the time of invention to include a laser diode and a photodiode, as a substitution of art recognized equivalents.

In addition, Conklin fails to specifically state that the sensor is mounted in-line between adjacent portions of a pipeline, however since the system is designed to measure a plurality of samples, including fuel oils (col. 1, line 27) and since it is capable of being installed at any position alone a pipe-line (col. 5, lines 45-52), it would have been obvious to one having ordinary skill in the art at the time of invention to install the device between adjacent portions of

the pipe-line to ensure that the fluid in the pipe line is tested and as a means to prevent permanent interruptions in the flow.

Additionally, Conklin fails to use the ratios of intensities (col. 5, lines 7-15) calculated to initiate a system control, however to do so is well known as taught by Taylor. Taylor discloses a turbidity sensor that includes monitoring of signals to initiate a system control (col. 5, lines 13-27). It would have been obvious to one having ordinary skill in the art at the time of invention to include a control structure to initiate a system control to ensure that the system runs properly by ensuring that the sensor is properly cleaned.

As to **claims 2-3 and 24-25,** Conklin and Taylor disclose everything claimed, as applied above, with the exception of the preferred sample. The preferred sample of Conklin is clear oil (col. 3, line 37), however the system is designed for use with a plurality of liquids and gases (col. 1, lines 20-22), the color of which will not interfere with the measurement (col. 5, lines 36-41). The apparatus is designed to be used with flowing liquids or gases, of which natural gas, propane, hexane, heptone, gas delivered from coal, and methane are examples. Since it has been held to be within the general skill of a worker in the art to select a known material in the basis of its suitability for the intended use, it would have been obvious to one having ordinary skill in the art at the time of invention to use the apparatus with natural gas, propane, hexane, heptone, gas delivered from coal, and methane.

Claims 6-9 and 27-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over ***Conklin et al. (3,358,148)*** and ***Taylor et al. (5,828,458)*** and further in view of ***Infante (5,742,064).***

Regarding **claims 6-8 and 27-30,** Conklin and Taylor disclose everything claimed, as applied above, with the exception of inputting a control structure into the circuitry, however to do so is well known as taught by Infante. Infante discloses a system for detecting impurities contained in flowing petroleum products that includes a computer workstation (fig. 1, item 30) programmed to analyze, correlate, and collate data received from the sensors (col. 4, lines 30-34). It would have been obvious to one having ordinary skill in the art at the time of invention to include a control structure in a computer to automate the system thereby increasing system production and decreasing measurement time. Please note that since the computer is programmed the programming must be stored in the memory using algorithms and a computer reads on an application specific integrated circuit.

As to **claims 9 and 31,** the system of Conklin, Taylor, and Infante discloses everything claimed, as applied above, with the exception of the program language, however it would have been obvious to one having ordinary skill in the art at the time of invention to use one of the claimed languages since the examiner takes Official Notice to the fact that they are well known in the art and that the selection of a known material on the basis of its suitability for the intended use has been proved to be within the level of ordinary skill of a worker in the art.

Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over ***Conklin et al. (3,358,148)*** in view of ***Tanaka et al. (4,270,049)*** and further in view of ***Taylor et al (5,828,458).***

As to **claim 15,** Conklin discloses a haze measuring apparatus with solid block cavity, comprising:

a housing having an inner flow portion and which is removable disposable between adjacent of portion of pipeline to permit fuel flow from a fuel source through the inner flow portion (fig. 1, col. 2, lines 55-56, and col. 5, lines 47-52);

a light source within the housing (col. 2, line 54);

first and second photo-detectors adjacent one another in the housing, the second photocell being offset from a normal unimpeded path between the laser diode and the light source (see fig. 2 and col. 2, lines 57-65); and

circuitry coupled to the first and second photo-detectors to monitor the ratio of measured light intensities (col. 2, line 65-col. 3, line 8).

Conklin differs from the claimed invention in that a remote unit, central station, and communications link are not provided, however to do so is well known as taught by Tanaka. Tanaka discloses a liquid leakage detection system that includes a remote unit, a central station and a communications link (col. 5, lines 30-45). It would have been obvious to one having ordinary skill in the art at the time of invention to include a remote unit, central station and communications link to provide real time coverage of any contaminants in the pipeline.

Additionally, Conklin differs from the claimed invention in that the light source is not disclosed as a laser diode and the photocell is not disclosed as a photodiode, however since a laser diode is a light source and a photodiode is a type of photocell, it would have been obvious to one having ordinary skill in the art at the time of invention to include a laser diode and a photodiode, as a substitution of art recognized equivalents.

In addition, Conklin fails to specifically state that the sensor is mounted in-line between adjacent portions of a pipeline, however since the system is designed to measure a plurality of

samples, including fuel oils (col. 1, line 27) and since it is capable of being installed at any position alone a pipe-line (col. 5, lines 45-52), it would have been obvious to one having ordinary skill in the art at the time of invention to install the device between adjacent portions of the pipe-line to ensure that the fluid in the pipe line is tested and as a means to prevent permanent interruptions in the flow.

Additionally, Conklin fails to use the ratios of intensities (col. 5, lines 7-15) calculated to initiate a system control, however to do so is well known as taught by Taylor. Taylor discloses a turbidity sensor that includes monitoring of signals to initiate a system control (col. 5, lines 13-27). It would have been obvious to one having ordinary skill in the art at the time of invention to include a control structure to initiate a system control to ensure that the system runs properly by ensuring that the sensor is properly cleaned.

As to **claim 16,** the system of Conklin, Tanaka, and Taylor discloses everything claimed, as applied above, in addition the signal represent light intensities measured by the first and second photo-detectors (col. 2, line 65-col. 3, line 8, Conklin).

Claims 17-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over ***Conklin et al. (3,358,148), Tanaka et al. (4,270,049),*** and ***Taylor et al (5,828,458)*** and further in view of ***Lamensdorf (5,568,121)***,

As to **claims 17-18, and 20-21,** the system of Conklin, Tanaka, and Taylor discloses everything claimed, as applied above, with the exception of a central interface in the remote system, however the provision of a central interface in a remote wireless communications system is well known as taught by Lamensdorf. Lamensdorf discloses a wireless system for sensing information at remote locations, the information being sent using a radio signal through an

antenna (col. 3, lines 50-68). It would have been obvious to one having ordinary skill in the art at the time of invention to include a central interface in a remote wireless communications system to provide the testing of data without the need to transport heavy and expensive equipment and as a means for transmission of the signals.

As to **claim 19,** the system of Conklin, Tanaka, and Taylor discloses everything claimed, as applied above, with the exception of a satellite as the communications link, however the examiner takes Official Notice to the fact that it would have been obvious to one having ordinary skill in the art at the time of invention to use a satellite as the communications link since the use of a satellite allows for remote location of sensing systems beyond the range of tradition wireless communications systems.

As to **claim 22,** the system of Conklin, Tanaka, and Taylor discloses everything claimed, as applied above, with the exception of a user interface device, however the examiner takes Official Notice to the fact that it would have been obvious to one having ordinary skill in the art at the time of invention to include a user interface device to provide control of the system on site.

Response to Arguments

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning; Conklin discloses a haze measuring apparatus that uses two photocells to measure haze in a fluid stream, the haze produce by particles in the fluid stream (col. 1, lines 15-20). Photocell (9), located directly opposite light source (1) measures transmittance and photocell (13), located at an angle from the transmittance path detect light scattered by particles in the fluid flow. Taylor discloses a fluid turbidity sensor having a light source and at least one sensor across the flow path. The turbidity being a measurement of

particles in the fluid flow. Additionally, as disclosed above Taylor provides the use of signals from two photodiodes to provide a system control (col. 5, lines 13-27). In light of the fact that Conklin and Taylor are in the same field of endeavor, applicant's assertion that the rejection seems to be combination of improper hindsight is respectfully traversed.

Taylor discloses the use of outputs from two photodiodes connected to circuitry (col. 3, line 54-col. 4, line 15) to determine the turbidity of a sample and to provide system control (col. 5, lines 13-27). Conklin does not provide system control, however the system of Conklin is designed to be used in pipeline assemblies where constant monitoring is not always possible and may be dangerous. The use of the signals from the detector elements to provide system control would have been an obvious modification.

Additionally, applicant's representative states that the examiner is incorrect in asserting that an LED is a functional equivalent of a laser diode, however the office action only states that it would be obvious to replace the light source of Conklin with a laser diode, not that and LED is a functional equivalent of a laser diode.

Infante, Tanaka, and Lamensdorf are in the same field of endeavor and used to reveal how the art has been modernized since the advent of computer controls. It is an obvious modification of Conklin to incorporate computer controls in the system to allow on the fly, distance inspection of pipelines.

Fax/Telephone Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zandra V. Smith whose telephone number is (703) 305-7776. The examiner can normally be reached on 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (703)308-4881. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-0530.

Zandra V. Smith
Primary Examiner
Art Unit 2877